

**Claims**

1. A method of identifying data in a node-based data source comprising the steps of annotating at least one node with a unique identifier.

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2. A method according to claim 1 wherein only selected nodes are annotated with unique identifiers.

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3. A method as claimed in claim 1 or 2 wherein the unique identifier comprises of system names or addresses.

4. A method as claimed in claim 1 or 2 wherein the unique identifier does not include system names or addresses; whereby the data source is not restricted to reside in any particular system.

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5. A method of modifying a node-based data source comprising the steps of:

associating selected nodes in the data source with identifiers;  
identifying a node to be modified by reference to its identifier; and  
modifying the node data.

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6. A method as claimed in claim 5 wherein the node is identified by selecting a corresponding node from a separate transformed version of the source; wherein

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the corresponding node in the separate transformed version and the node in the source document have the same identifier.

7. A method as claimed in claim 5 wherein the node is identified by selecting a corresponding node from a separate transformed version of the source; wherein

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the corresponding node in the separate transformed version and the node in the source document are mapped to each other by a series of identifiers;

each identifier in the series representing a transformation in a series of multiple-transformation.

8. A method as claimed in claim 7 whereby the series of identifiers provide means for a proxy or firewall interface whereby the nodes in the data source is protected from unauthorised direct access.

9. A method as claimed in claims 6 or 7 wherein the separate transformed version of the data source is displayed in a desired presentation format.

10. A method as claimed in claims 5, 6 or 7 wherein the modification comprises the steps of:  
deleting the selected node in the data source.

11. A method as claimed in claims 6 or 7 wherein the modification further comprises the steps of:

inserting a node in the transformed version of the source;  
updating the data source by creating a counterpart node corresponding to the inserted node; wherein

the counterpart node is positioned in the data source in dependence upon at least one property of one or more nodes in the transformed version.

12. A method as claimed in claims 5, 6, 7, 8, 9, 10 or 11 wherein the data source is a marked-up language document.

13. A method as claimed in claims 6, 7, 8, 9 or 11 wherein the transformed data source is a marked-up language document.

14. A method as claimed in claim 6 or 7 wherein at least one node in the transformed data source does not have an identifier; whereby  
modification cannot be effected on the node without an identifier.
- 5 15. A data source structured to operate as a node-based data source wherein at least one node is associated with a unique identifier.
16. A data source as claimed in claim 12 and 15 wherein the data source is an XML document.
- 10 17. A data source as claimed in claim 13 and 14 wherein the transformed version of the data source is a marked up language document.
18. A data source as claimed in claim 18 wherein the mark up language is XML.
- 15 19. A method of annotating a transformed version of a data source comprising the steps of:  
copying identifiers in the nodes in a data source to corresponding nodes  
20 in the transformed version of the data source.
20. A method as claimed in claim 19 wherein only selected identifiers are transferred to the transformed version of the data source.
- 25 21. A method as claimed in claim 20 wherein the selection criteria for the identifiers are in transformation or query scripts from which the transformed version of the data is derived.
22. An Identifier which is capable of uniquely identifying a node in the data  
30 source and also a corresponding node in a transformed version of the data source; whereby

the node in the data source is mapped to the corresponding node in the transformed version of the data source.

23. An identifier as claimed in claim 22 which is:

5 unchanged despite modifications to the data source structure or the data source itself; and

unchanged despite modifications to the structure of or the data in the transformed version of the data source itself.

10 24. An Identifier as claimed in claim 22 wherein the Identifier further provides a means of serialising a display in the transformed version of the data source; whereby

the display state of the transformed data source before an update action is returned to that same state in the display after an update action and a refresh  
15 of the display.

25. An identifier as claimed in claims 22, 23 or 24 comprising:  
identifiers derived from user names.

20 26. An identifier as claimed in claims 22, 23 or 24 comprising:  
identifiers derived from system names.

27. An identifier as claimed in claims 22, 23 or 24 comprising:  
identifiers derived from system names and identifiers derived from user names.

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28. An identifier as claimed in anyone of claims 22 to 27 which is removed from the node it identified after an update session is over.

29. A data transformation engine comprising:

30 means of copying Identifiers of nodes in the data source and inserting the identifiers into the nodes of the transformed version of the data source; whereby

the nodes in the transformed version of the data source are mapped to their corresponding nodes in the data source.

30. A thin-client system implementing the methods as claimed in claim 4 or 5, comprising:  
5 a separate server system in which the transformation takes place;  
a separate client system being a system for display of the transformed version of the data source.
- 10 31. A fat-client system implementing the methods as claimed in claim 4 or 5, comprising:  
a separate server system wherein the data source resides;  
the separate client system which receives the data from the server system and in which the transformation of the data source takes place.
- 15 32. An industrial standard of node-based document modification adopting the methods as claimed in any one of claims 1 to 14, or any one of claims 17 to 21.
33. An industrial standard of identification of nodes in a node-based  
20 document adopting the Identifiers as claimed in anyone of claims 22 to 28.
34. An industrial standard of node-based data transformation adopting the engine as claimed in claim 29.
- 25 35. A method as claimed in any one of claims 1 to 14, or any one of claims 19 to 21 wherein the data source is itself a transformation script.
36. A data source as claimed in any one of claims 15 to 18 wherein the data source is itself a transformation script.
- 30 37. An identifier as claimed in any one of claims 22 to 28 wherein the data source is itself a transformation script.

38. An data transformation engine as claimed in claim 29 wherein the data source is itself a transformation script.

5 39 A thin-client system as claimed in claim 30 wherein the data source is itself a transformation script.

40 A fat-client system as claimed in claim 31 wherein the data source is itself a transformation script.